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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,964	01/26/2006	Stefan Rogg	0169060462	8449
22428	7590	11/21/2006		EXAMINER
FOLEY AND LARDNER LLP				TRIEU, THAI BA
SUITE 500				
3000 K STREET NW			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20007				3748

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/565,964	ROGG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thai-Ba Trieu	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 16 October 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 12-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 12-32 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____.                                     |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____.                         |

## DETAILED ACTION

This Office Action is in response to the Amendment filed on October 16, 2006. Applicant's cooperation in correcting the informalities in the specification is appreciated. Claims 1-11 were cancelled; and claims 12-32 were newly added.

Upon the reconsideration, the indicated allowable subject matter of claims 4-5 and 8-9 has been hereby withdrawn. A new ground(s) of rejection is set forth below.

### ***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Specifically,

- In Claim 32, the limitation of "*the charge air after the first cooling stage having a temperature of between 40°C and 110°C*" needs to be incorporated with the specification.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claims 24 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Cikanek et al. (Patent Number 5,269,143).***

**Regarding claim 24,** Cikanek discloses a circuit arrangement comprising:

a low-temperature circuit (system 8) for cooling charge air that is fed to an engine in a motor vehicle equipped with turbochargers,

wherein the low-temperature circuit comprises:

a first low-pressure turbocharger (14) for compressing the charge air in a first compressing stage;

a second high-pressure turbocharger (20) for compressing the charge air in a second compressing stage;

a low-pressure charge air/coolant cooler(18) provided downstream of the low-pressure turbocharger (18) and upstream of the high-pressure turbocharger (20) for cooling the charge air in a first cooling stage; and

a high-pressure charge air/air cooler (24) provided downstream of the high-pressure turbocharger and upstream of the engine (30) for cooling the charge air in a second cooling stage, wherein the high-pressure charge air/air cooler is configured to use air flow of cooling air (See Figure 1, Column 3, lines 20-44, Column 4, lines 11-25 and 60-68, and Column 5, lines 1-31).

**Regarding claim 31,** the method as claimed would be inherent during the normal use and operation of Cikanek device as disclosed in the rejection of claim 24.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claims 12-16, and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cikanek et al. (Patent Number 5,269,143), in view of Roithinger (Patent Number 6,782,849 B2).***

Cikanek discloses a circuit arrangement comprising:

a low-temperature circuit (system 8) for cooling charge air that is fed to an engine in a motor vehicle equipped with turbochargers,

wherein the low-temperature circuit comprises:

a first low-pressure turbocharger (14) for compressing the charge air in a first compressing stage;

a second high-pressure turbocharger (20) for compressing the charge air in a second compressing stage;

a first cooler (18) provided downstream of the low-pressure turbocharger (14) and upstream of the high-pressure turbocharger (20) for cooling the charge air in a first cooling stage; and

a second cooler (24) provided downstream of the high-pressure turbocharger (20) and upstream of the engine (30) for cooling the charge air in a second cooling stage,

wherein the second cooler (24) comprises a high-pressure charge air/air cooler (24), and

wherein the low-temperature cooler (18) and the high-pressure charge air/air cooler (24) form a cooling module,

wherein the front face of the low-temperature cooler (18) takes up 20% to 50% of a total front surface of the cooling module;

wherein the first cooler (18) comprises a low-pressure charge air/coolant cooler;

wherein the motor vehicle comprises an engine cooling circuit (system 8), wherein the low-temperature circuit (system 8) is independent of the engine cooling circuit and has its own pump for delivering coolant;

wherein the pump (54) in the low-temperature circuit (system 8) is arranged between a low-temperature cooler (56) and the first cooler or between the first cooler (18) and the low-temperature cooler (56) (See Figure 1, Column 3, lines 20-44, Column 4, lines 11-25 and 60-68, and Column 5, lines 1-31).

However, Cikanek fails to disclose an arrangement of the high-pressure charge air/air cooler and a low-temperature cooler.

Roithinger teaches that it is conventional in the art of cooling system for internal combustion engines, to utilize the high-pressure charge air/air cooler (11) being

arranged alongside a low-temperature cooler (10) and, seen in the direction of air flow of cooling air (L), upstream of a main coolant cooler (13) (See Figure 1, Column 3, lines 66-67, and Column 4, lines 1-16).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized an arrangement of the high-pressure charge air/air cooler and a low-temperature cooler, as taught by Roithinger, to provide a safe space and improve the efficient cooling of the charge air in the Cikanek device.

Note that the recitation of "the front face of the low-temperature cooler taking up 20% to 50% of a total front surface of the cooling module" is considered as the functional language. Cikanek discloses all the structural components of an engine system, which are read on those of the instant invention. Therefore, the Cikanek system is capable of performing the same desired functions as the instant invention having been claimed in claim 13.

***Claims 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou et al. (Pub. Number US 2005/0056444 A1), in view of Edmaier et al. (Patent Number 5,394,854).***

Chou circuit arrangement comprising:

a low-temperature circuit (90) for cooling charge air that is fed to an engine in a motor vehicle equipped with turbochargers,

wherein the low-temperature circuit comprises:

a first low-pressure turbocharger (52) for compressing the charge air in a first compressing stage;

a second high-pressure turbocharger (51) for compressing the charge air in a second compressing stage;

a first cooler (63) provided downstream of the low-pressure turbocharger (52) and upstream of the high-pressure turbocharger (51) for cooling the charge air in a first cooling stage; and

a second cooler (62) provided downstream of the high-pressure turbocharger (51) and upstream of the engine (2) for cooling the charge air in a second cooling stage,

wherein the first cooler (63) comprises a low-pressure charge air/coolant cooler;

wherein the second cooler (62) comprises a high-pressure charge air/air cooler;

wherein a low-temperature cooler (63) and the high-pressure charge air/air cooler (62) form a cooling module, wherein the front face of the low-temperature cooler takes up 20% to 50% of a total front surface of the cooling module (See Figures 1 and 3-5; Paragraphs [0057] and [0059]-[0068]).

However, Chou fails to disclose the low-temperature circuit being part of an engine cooling circuit and its structural details.

Edmaier teaches that it is conventional in the art of cooling system for a supercharged internal combustion engine, to utilize the low-temperature circuit being part of an engine cooling circuit (from 4, 2, 6, 7, via 17, to 4); wherein the low-temperature circuit branches off from the pressure side of a pump (17) from the engine cooling circuit and is fed back to the engine cooling circuit at an engine outlet (See Figure 3, Column 5, lines 39-63).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the low-temperature circuit being part of an engine cooling circuit and its structural details, as taught by Edmaier, to improve the efficiency of the Chou device.

Note that the recitation of "the front face of the low-temperature cooler taking up 20% to 50% of a total front surface of the cooling module" is considered as the functional language. Chou discloses all the structural components of an engine system, which are read on those of the instant invention. Therefore, the Chou system is capable of performing the same desired functions as the instant invention having been claimed in claim 13.

***Claims 17-18 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cikanek et al. (Patent Number 5,269,143), in view of Edmaier et al. (Patent Number 5,394,854).***

Cikanek discloses the invention as recited in the rejection of claims 12 and 24; however, Cikanek fails to disclose the low-temperature circuit being part of an engine cooling circuit and its structural details.

Edmaier teaches that it is conventional in the art of cooling system for a supercharged internal combustion engine, to utilize the low-temperature circuit being part of an engine cooling circuit (from 4, 2, 6, 7, via 17, to 4); wherein the low-temperature circuit branches off from the pressure side of a pump (17) from the engine cooling circuit and is fed back to the engine cooling circuit at an engine outlet (See Figure 3, Column 5, lines 39-63).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the low-temperature circuit being part of an engine cooling circuit and its structural details, as taught by Edmaier, to improve the efficiency of the Cikanek device.

***Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cikanek et al. (Patent Number 5,269,143), in view of Melchior (Patent Number 4,485,624).***

Cikanek discloses the invention as recited above; however, fails to disclose the charge air after the first cooling stage having a temperature of between 40°C and 110°C.

Melchior teaches that it is conventional in the art of cooling air system for supercharged internal combustion engines, to have a temperature of the charge air after the first cooling stage being between 40°C and 110°C (See Figures 1-2).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have had a temperature of the charge air after the first cooling stage being between 40°C and 110°C, as taught by Melchior, to improve the efficiency of the Cikanek device.

### ***Response to Arguments***

Applicant's arguments with respect to claims 12-32 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Callas et al. (US Patent Number 6,883,314 B2) disclose cooling of engine combustion air.
- Ambros et al. (US Patent Number 6,619,379 B1) disclose a heat exchanger arrangement particularly for motor vehicle.
- Valaszkia et al. (Pub. Number EP 1 270 896 A2) disclose a method and device for cooling air and hydraulic oil.
- Eastwood et al. (Pub. Number de 29 23 852 A1) disclose cooler for a supercharged engine.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



TTB  
November 13, 2006

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